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# EVOLUTION EVOLVED—A PHILOSOPHICAL CRITICISM.[1]

INTRODUCTORY NOTE.—May I begin by forestalling certain possible criticisms or misunderstandings of what I am to say here? True, in the course of my paper I shall issue occasional cautions, but an introductory caution or two seems desirable.

Thus, I am far from making a personal attack upon evolutionists. Darwin, among others, will still be left when I am through, and his contribution to thought will seem greater, not less, if the purpose of my paper is even only approximately realised. A truly philosophical criticism does not attack; it examines and tries to fulfil. To carry evolution through to its only legitimate conclusions, to evolve evolution, as my title has it, is what I have undertaken. I would do something towards freeing evolution from the integument of other views out of which it has sprung.

Furthermore I recognise that science and philosophy are separated in their interests, or in their points of view. Some of the evolutionists' doctrines, that I am to criticise, are without doubt due to the necessities of what we call scientific investigation and formulation. Science as science has to deal with details, with special spheres of experience, while philosophy can never stop short of a theory of the universe. But, nevertheless, the limitation of science is no reason for objecting to the critical examinations of philosophy; it is, on the contrary, an ever present demand for philosophical criticism. The partial view, however scientifically accurate, cannot but be also formal or phenomenalistic.

And I recognise that science is in reality not so very far from what my criticisms here will seem to be exacting of her. She is, then, not so far behind philosophy as I may seem to be making her. The scientists in many quarters have indeed been their own critics, and in point of fact philosophical criticism never comes under other conditions, never comes, as it were, out of a clear sky. The philosopher can only formulate the thought that already is. Some evidences of science's present progressive condition are to be mentioned here and many more might be and there simply must be many others of which I am ignorant. But, aside from what has just been said, that philosophy only formulates existing thought, my criticism must be taken to be as much of a general standpoint as of specific doctrines, and it must be remembered also that a philosopher has always a double responsibility. He must wait upon science, and in addition upon the prevailing understanding of science, being in his social function a mediating agent, and this double responsibility is bound to hold him a little "behind the times," as the phrase runs. It is a strange phrase, is it not?

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[1] This paper was read before the Katholepistemiad Klub, of the University of Michigan Faculty, and also at a public meeting of the University of Michigan Philosophical Society, in October, 1898.

And, as a last introductory caution, if you are now holding in your mind certain ideas, whether from ordinary life or even from science, of such words as organism, environment, life, individual, inorganic, and the like, then as a philosopher I must ask you not to expect me to conform slavishly to your verbal dogmas. Did I conform, my very criticism would have to go to the winds. It is not the function of philosophy—and this is hard for a great many people, even for modern evolutionists, to understand—to perpetuate dogmas. The function of philosophy is to evolve the inner truth or the inner spirit of a dogma out of the letter that oppresses. Science, as the clearest and most exact formulation of the ordinary consciousness, may need a fixed, a dogmatic terminology, but philosophy is too self-conscious, too self-critical in its use of words to rest upon any such uncertain certainties. But you say, with so many others, that philosophy should devise a terminology of its own. How thoughtless you are! Would you rob philosophy of her relation, of her responsibility to life? Would you—well, perhaps you would disarm her criticism!

## EVOLUTION EVOLVED.

IT is fair to suppose that the prevailing good-natured toleration between science and philosophy is in control here. Of course, philosophy is always ignorant of facts, and science in her turn is at least equally blind to conclusions or to so-called metaphysical implications. Facts, moreover, being of necessity partial and abstract, are certainly not less misleading than the visions of the invisible that philosophy so delights in; nor has the blindness of science been one whit more useful in man's progress towards an understanding of his universe than the ignorance of philosophy. If the blindness of our modern science to what we often hear styled the truths of the spirit has been the means to all the wonderful discoveries of the century, we need to remember also that the ignorance of Socrates, or more specifically the growing mistrust of the senses that came to the Mediterranean peoples in Socrates's day, made our modern era possible, and that only by a similar ignorance at the present time can the knowledge of our day ever hope for fulfilment in a real wisdom.

One of the ways in which an ignorant philosophy deals with a blind science is to raise a cry for consistency. Scientific theories, although founded on facts or because founded on such transitory things as facts, must be first of all responsible to each other. The different sciences are but so many different views of one reality. Their different fields are but different related aspects of a universe. Undoubtedly it is true that theories, even in widely separate spheres, always are in a striking degree sensitive to each other's contentions and to each other's changes. They are sensitive even in spite of themselves, as their history shows; and the interaction among them does but indicate how true it is that an organising mind lives within or underlies—only neither of these metaphors is at all adequate—the separate thinking of individuals. But philosophy, issuing a call for consistency, aims to make the indwelling or underlying mind more clearly conscious of itself. Philosophy would awaken the sciences to a living sense of their mutual responsibilities.

And the awakening always transfigures the universe that the blind theories had been staring at so zealously. Space and matter and life and man and any one of the other interests of the different sciences are not so many separate details that can be separately studied. To study them separately is to get only abstract and wholly phenomenalistic results, although what Herder called "the wonderful symmetry" of things or of minds always insures the *form* of a truth that is universal, that is fundamental and really concrete. All the many interests of the sciences, I repeat, are one, and accordingly the understanding of them must be a single consciousness, a single organising and transfiguring idea. The form that springs from the symmetry must come to light as *the pre-eminent fact.* What an evidence of our human frailty that the word fact ever got a plural! Has not somebody said somewhere: "Fact is one and single; facts are lies?" If not, somebody ought to have said it long ago; and to have said it particularly with reference to the "facts" of life, man, matter, and the rest.

But, here to turn to the special business of this paper, there prevails among us and has prevailed for a number of years a certain hypothesis, the evolution-hypothesis, which it has seemed to me was well worth our consideration and philosophical criticism at this time. Not that I imagine that we are likely to find it essentially wrong, but possibly it ought itself to evolve a little. I know that it has been with us long enough to be rather commonplace and even in the minds of many among the thoughtful and well-informed to be regarded, or at least to seem to be regarded, as final, but after all is said it has not been with us long enough to *prove* to any thoroughly careful student of history that it is more than a passing phenomenon. There were evolutionists among the ancient Greeks and possibly they will some day be found to have been forerunners of Darwin not only in their advocacy of evolution but also in the passing of their point of view. Current science may resent this suggestion but philosophy has no choice but to make it. Moreover, if I be not very much mistaken, the evolution-hypothesis is already suffering, not from the perennial attacks of such as still believe in sudden creation and external design but from a rational and thoroughly enlightened skepticism. The limitations of evolution instead of its possibilities are occupying considerable attention, and questions of origin and even of destiny are not quite as absorbing as they used to be. But, to dismiss these possibly unpleasant insinuations, it is fairly safe to say that we are all pretty well in line with the times and disposed to call ourselves evolutionists, and some of us are even zealous evolutionists. Not that we all understand literally the same thing by the word, but we have a certain common standpoint from which we take our views of things. Thus, almost instinctively we use the historical method; we cannot admit to our serious thinking any slightest suggestion of an arbitrary causation or creation; on the whole we prefer Darwin to the Book of Genesis; we like to speak or hear and even to think of the community of living things. And yet—and here is seen the need of a philosophical criticism—although we are evolutionists, we are still, most of us and perhaps all of us, entertaining with different measures of interest notions of our world that are not consistent with evolution. Evolution cannot possibly justify them as conclusions and so long as we hold them in our minds, however consciously or however vaguely, we fail to get the inner truth of evolution itself. An enthusiastic biologist recently said in the course of a discussion on a certain point that was outside of the recognised field of the biological sciences, that without any reasonable doubt evolution was true, but that as to the point in question such and such might be true and it might not, and whether it was or not did not seriously concern him "What blindness!" we have to exclaim at once, since even evolution is concerned with everything. And, when it does not concern itself with everything it can surely be only a passing phenomenon and ought to be criticised and must need evolving.

What, then, are the inconsistencies that have been referred to? To enumerate them completely would be idle. It would be impossible. Any enumeration is without limit; and, as dangerous in papers of this sort as in sermons, it is a sure mark of misunderstanding. One can as easily add another case of anything as count from two to three or from a million to a million and one. Accordingly, what we have to do is to get from but a few cases of current views that are inconsistent with evolution the condemning mark of them all. In point of fact any one case carefully examined would be enough. After the consideration of a few cases, however, a proper philosophical sensitiveness to consistency as a principle will possibly have been quickened within us and we shall have come so to understand the evolution-hypothesis that it will be transfigured and we may even hope to get from it, not a mere partial and phenomenalistic theory but a real insight into the character of the universe as a whole. And, parenthetically, if in what follows I take up for criticism things that in your opinion no evolutionist ever said anything about one way or the other and charge them to evolution, you have only to remember how strictly true it is that one cannot, that even a scientist cannot, speak of anything whatever however remote, without implicitly saying something about everything and that the first duty of a philosophical criticism is to read between lines and discover just what is implied in the open assertions. This paper might have been entitled "The Fatal Implications of Evolution"; only upon one or two of the points referred to the scientists happen to have been quite explicit.

We begin by asking if evolutionists have any right to admit even the possibility of an inorganic lifeless matter. That evolutionists do admit this possibility is without question; and, to bring the case home, that our universities, without appearing in any quarter to feel that a contradiction is involved, give instruction both in an evolutional biology and in a physical science which holds to an inorganic material substance is—what shall I say?—well, it is one of the intensely interesting phenomena of modern education. Darwin, in his *Origin of Species*, as if anxious to leave nothing out,—and is it not strange into what grim fate anxiety will always lead?—is ever at greatest pains to recognise both "the organic and the inorganic conditions of life," and his attitude is characteristic of his followers. Thus, the point of discussion with the biologist who was mentioned here only a moment ago was just this of the existence of an inorganic substance. But, to face the issue directly, how can life have inorganic conditions? The inorganic cannot but serve by its sheer negativity, by its strangeness or external nature and arbitrariness, as an insurmountable obstacle to any really evolutional process in life. Grant an inorganic matter, a matter to which life is altogether foreign, and at sometime, never mind how long ago, there must have been a creative act, whereby the lifeless matter that was came to live, although to live a life in all important respects unnatural or not essential to it; and at every time, that is to say, whenever a living creature, whether a highly developed man or the primitive protoplasm, expresses an adjustment to its physical conditions, there must be repeated the miracle of creation, the miracle of abiogenesis. Some may prefer to speak of adjustment by chance instead of by miracle, as if chance were a safer term for science, miracle being left to creationism in religion; but for the creatures themselves that are involved the difference is zero. A world of miracles is a world of chance. Excuse the truism.

Herbert Spencer was logical or candid enough to couple with his metaphysical doctrine of an unknowable irrational something, as if an alien substance, underlying all existence, a biological doctrine of adjustment by chance or—and this is the same thing—by the blindly tentative activity of a lot of wholly random impulses. Random impulses and chance adjustment are the only hope of an organism with inorganic alien conditions to relate itself to. But, again to put the case and to put it somewhat differently, if matter is not living, if life is not *essential* to the physical, if the physical and the organic are not one and the same, if, in short, there really is a lifeless, inorganic realm, then life in the physical world must be a transitory thing, beginning at a certain time and ending at a certain time and for whatever time it abides—whether for a short time or for a long time does not matter—being altogether strange to the conditions environing it; and whence and whither will be the most natural interests of living creatures, where and how being too direct and too practical. Interesting indeed it is to see how the creatures that professing evolutionists tell us about, creatures that have been observed in nature or studied so carefully in laboratories, are made to live in their world but not of it,[1] very much like their contemporaries among men whose lives they somehow, by some curious movement in human thought, have been made to reproduce and even to parody. Perhaps science is meant to be dramatic and satirical; but, be that as it may, to return to our contention, a life whose adjustments in any degree depend on chance or miracle, a life that is transitory and strange, cannot evolve. You may be able to discover stages in its history and even to arrange these stages in what you are pleased to call an evolution-series, but in just so far as you admit to your universe a lifeless condition of life you will have to corrupt your evolution-series with fatal breaks or jumps; your Spencerianism or your Darwinianism, true to the spirit if not to the letter of the master, will certainly have to fear that creationism as a restless shade will return to view and ask for a decent burial.[1]

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[1] Creatures are made to live in their world but not of it, whenever their activity is regarded as the effect merely of some antecedent cause, or whenever it is treated as a reaction upon wholly external conditions, or whenever in any way it is subjected to an abstract or a partial explanation.

But, secondly,—and you will quickly see that here is really no second and separate inconsistency of the current evolution but merely a slightly different view of the first,—how can the evolutionist think of development as taking place in the life of an organism or of a group of organic forms and at the same time assume that the environing conditions of the development remain fixed or if changing change independently of any relation to the developing life? You will, I believe, as your attention is called to the matter, find it a necessity of thought that the evolution of organic forms and the qualification of their environment proceed, as it were, hand in hand, or better, as if one were the right hand and the other the co-operating left hand, being contemporaneous and organically related phases of one movement. Under a consistent evolution, organism and environment must be the most perfect functions of each other. When, however, Darwin tells you of living creatures becoming "ever more and more improved in relation to their conditions," and when you find the spirit of this formula permeating many of his paragraphs and infecting also the discourses of evolutionists generally, your thinking has a shock. And you wonder, to say the least, that a view so strange to thought can have held its own so long. Nor has biology been alone in the offence, for psychology has been guilty of a corresponding error in her effort to apply evolution to the process of knowledge or consciousness and at the same time to continue to treat the object of knowledge as a fixed or at least relatively unchanging something that exists independently of the subject. But surely it is absurd to suppose that the conditions of life stand still as something in themselves established and only to be approached ever nearer by living creatures. On such terms evolution is made sheer perfectionism with all the hopelessness; and, as before, so here it is made dependent on the arbitrary or the miraculous. To be moving, however rapidly, towards a goal infinitely distant is not as a matter of progress appreciably better than to be once for all held in a state of absolute imperfection and so abjectly dependent on some agency from without to take you over the impassable chasm. Accordingly in the simple cause of consistency the evolutionist must dismiss from all chance of influence on his thinking not only the existence or possible existence of an inorganic matter but also the fixed environment and the infinitely remote goal of a perfected adjustment that goes with it.

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[1] I might say here, but in a note, because it ought to go without saying, and because also I seem to myself to have said it already, that evolution should not and cannot be made a matter of mere so-called scientific observation. The microscope, however powerful, is still limited to the eye, and things seen are never final. There are other necessities of truth than those of objective perception. The truth or falsity of abiogenesis or spontaneous genesis must depend on something more than what experiment and observation can discover. Besides observation there is thought, and the two are literally functions of each other and are strictly responsible to each other. Thus the visible must be also thinkable before it can be said to be real. And that evolution in relation to a lifeless matter is not thinkable has been the burden of the recent paragraphs. Philosophy's call to science for consistency means in general that the thinkable as well as the discoverable must be taken into account. The thinkable is all that ever can be truly discovered.

Now is it not curious that science, while opposing the dogmatism and formalism and supernaturalism of religion, should have been so rash as to offer for a substitute a view of life that we are finding to be not one whit less deterministic? Surely, as was suspected by us before, science is given to satire. She has been able to do without the material of the old religious teaching, but the form, the attitude of mind, the underlying controlling principle she has retained, applying it to every minutest detail of nature; and her universally applied creationism is satire supreme. No wonder evolution and religion have been hostile to each other. Determination being on both sides, there had to be a conflict, and the conflict is our security for something better than either evolution or its opponent.

Of a piece with the perfectionism of evolution is the idea that evolution is away from something. Evolution, however, can be thought neither as toward something which as yet is not nor as away from—in the sense of literally and completely out of—something. Somebody picks up a clod of earth and exclaims: "You need not tell me that life can come out of that, that that can live." Another objects to the doctrine of man's evolution from the lower animal. And a third fears to lose his soul under an evolutional régime,—as if forsooth a thing worth keeping at all ever could be lost. But no one of these three would need to be so troubled in his mind if he would only recognise for himself that in reality evolution must be not of life out of clods nor of men out of animals nor of souls out of bodies, but of life *with* the conditioning clods and of men *with* the accompanying animals and of souls *with* the physical bodies. Do I need to repeat here that environment in general, in its qualities or values, in its character, is itself a result of evolution? It is as much a result of evolution as any of the evolved creatures related to it. Indeed the relation more than anything else is what evolves.

And perhaps my meaning will be made clearer if I suggest further that for a consistent evolutionist lower and higher as applied to contemporaneous existences are exceedingly dangerous terms. Matter and mind are often said to be lower and higher respectively; in fact they are regarded as lowest and highest; but the terms so applied are very misleading. Matter and mind are related contemporaries, and like all contemporaries are responsible for each other's character. They are conditions of each other. Each is, in fact, but an abstraction for something in the other. Letting these extremes go, however, we more naturally consider here certain very familiar intermediate stages or degrees. Thus the animals about man are not essentially lower than he; he is not higher; but he and they are the related and so mutually determining and mutually dependent aspects of one life. Man has within himself an animal nature and only in and through this can he ever freely express what he is; or, again, the human grows out of the animal but never outgrows it. Were the conditions of life really fixed, being somehow independent of life itself, and the goal of life consequently only approachable, a higher *separate* nature for man might be accredited; but also there could be no true evolution and that means no truly and substantially responsible activity. Not in escape from the lower, but in expression and realisation of it, can the higher consist. Even while at work upon this paper I have heard a discourse in which the development of man was strikingly and—at least in the speaker's opinion—also optimistically described as from a condition in which man was one-tenth spiritual and nine-tenths physical to a condition—that of the present—in which he is nine-tenths spiritual and one-tenth physical, and this description, shorn of its mathematical precision, is quite in line with what evolutionists, even the most scientific of them, have been teaching more or less directly for a long time. We cannot help, however, being very grateful that even so small a physical part is still allowed us and we are likely, merely for the needs of our thinking, to face any danger of retrogression or of atavism or of anything as bad or worse and hope for a larger part in course of time. Yes, it would certainly be hard to find a more deceptive phrase than this, so often used, "the evolution of man," in which the view, that has just been before us, is so quietly and confidently entertained. Only the whole to which man belongs evolves; or man evolves with the whole, not out of it. Parts, whether great or small, whether significant or insignificant, do not evolve away from each other.[1] And with this way of putting the case in hand we reach a difficulty among evolutionists that is of very special interest.

Thus, a third point of inconsistency—or is it a fourth? for I believe I had stopped counting—is in the prevailing view that evolution has of individuality. Although avowing the developmental view of life, it has generally persisted in treating life as a peculiar property or function resident in certain physical bodies, and in consequence the living individual has been very physically conceived, being determined primarily by spacial and temporal conditions. Rather has the thought been, or seemed to be, that an individual body as so much physical mass lives, than that life is a matter of the universe as a single and indivisible whole; being the activity in which the relation of a body to its surrounding conditions is expressed or maintained; but life as a relation, or rather, to be more explicit, as that wherein relationship is actual and ever actualised, instead of life as an indwelling property, is indisputably a necessary doctrine of a consistent evolution. Did physical bodies live independently of any relationship, were relationship not a primary condition of life, such activities of living creatures as ever find expression would have to be creative of a relationship, being quite arbitrary or irresponsible reactions on environment, and through them plainly enough development or evolution could never take place. Or is it untrue and have we been deceived in presupposing that for real evolution activity must be originally and continuously responsible to its conditions? If we have been deceived, then an arbitrary creation was and the original miracle has been repeated with every change since, and you and I, as well as all other living creatures, are here and now confronted with an essentially alien world and the so-called social relation that any of us has to his fellows is the emptiest convention, being as external to the nature of us that live as is the sphere in which we happen to find ourselves living together. Alienate nature and you alienate human nature also; and, although evolution has liked to declare that nature and man are one, the alienation is still quietly retained in a physical, life-endowed or occultly living individual.

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[1] The evolution of man, as if of a single part of nature, is an idea which quite within itself makes necessary the missing links in his own peculiar evolution-series. Only the evolution of the whole can be seen to be without breaks, to be perfectly and consistently continuous. Study the separate development of a part and you cannot but find sudden beginnings, repetitions, evidences of atavism, strange anticipations, arbitrarily persistent types, and sudden disappearances. On the other hand, study the development of the whole and not only will the series be continuous but also its very continuity and consistency will bring even the remotest past into the present, or, as the same truth, the present in its manifold of coexistences will be found to be a complete recapitulation of the series.

In their view of individuality evolutionists seem to me to have offended, and they are probably likely to offend, more than in any of the other ways that have been indicated here. Simply the contradiction is less glaring. Still, in as much as a life-endowed individual logically suggests the perfectionism and the determinism and the dualism which have been considered above, it is superficial to make any invidious comparison. Even to repeat again, a body endowed with the peculiar property of life naturally, logically has a lifeless inorganic environment; and, although some writers may get so far as to deny the existence of an inorganic matter, still if they hold to a life-endowed body they are admitting—by a dark way—the inorganic to their universe.

In the current psychology, which is not less hospitable to evolution than the other branches of science and which has been already referred to here as still recognising a fixed and independent object, this inconsistent view of the individual has shown itself with the assumption that consciousness, as well as life, is a property of individual bodies or that sensation, a special form of consciousness, is the indwelling property of certain distinct organs. Of course just this view of sensation has made necessary the assumption of a "higher" and wholly separate process or faculty, namely, thought,[1] in which the given material of the senses is unified, but the very necessity of such an assumption shows that evolution demands another view of both sensation and thought. For evolution, thought must be positively within sensation, not outside of it, original with it, not an outgrowth, and sensation accordingly must belong to the organic as such instead of being peculiar to any separate organ or to any separate group of organs. Sensation is local only as life is local or as any special functional process, like digestion or walking, is local. And as individual organs are not individually sensitive, so individual bodies are not conscious individually. In short, relationship, original and actual or substantial relationship, is as essential to consciousness as to life; and, to be at once brief and possibly almost practical, the mere consciousness of individuals is in itself the consciousness, the thinking of society. Some time ago I listened to a paper on "The Sixth Sense and other Senses," and the evidence was clear that the old-time limitation of sensation to certain familiar organs was breaking down. The conscious were coming to have dealings with the unconscious. But the writer, like so many who have interested themselves in the same field, got no farther than the recognition of an indefinite number of sense-organs; he was not enough of an evolutionist to escape the supposition that sensation instead of being an organic function is an indwelling property of the sense-organ.

In political science the life-endowed individual, conscious to itself alone, is frequently referred to as a "social atom," a most curious paradox of course; but in biological science the evolutionist has been not less paradoxical in his efforts first to compose a group or species from his independently living[1] bodies and then to apply to the group the mutability that evolution requires. Any group of individuals, whose life is quite external to its conditions, to its environment, for the sake of unity and integrity must be of a strictly permanent mark or type, all the individuals in so far as members of the group having in common such and such essential characteristics and in so far as varieties possessing differences that are mere accidents to the group. The variety is thus quite outside of the group and it will in fact have to lead two distinct lives, one in the species and the other by itself as variety. Moreover a group will either persist in its peculiar nature or disappear absolutely. The case is the same exactly as under the nativistic or intuitionalistic theory of morals, according to which the moral law must be literally the same for all, incapable of any variation whatsoever, any particular act or way of life being once for all determined as either wholly good or wholly bad, and all the many differences of experience being possibly of interest to prudence but having absolutely no bearing on duty. But evolution, in life generally as in morality, relies on change, on responsible, organic change. The greatest worth of the evolution-hypothesis consists in its allowance for adaptation to differences. Consequently we cannot allow even the suspicion of a separation of species and variety, of unity and difference. The Cambridge graduate, author of a fairly keen examination of Darwin's theory of the transmutation of species,[2] need not have been so surprised at finding Darwin so confused in his mind, or at least in his statement, as to just what species and variety really were and how they were related. In spite of his great idea and of his great work Darwin simply could not save himself from the confusion, because like so many of his followers he tried to think transmutation and evolution into what were, after all is said, only occultly, independently living creatures. A life-endowed individual means a fixed species, and *vice versa;* and Darwin's *Origin of Species* is filled with direct and indirect avowals of life as an indwelling endowment and so of individuality as apart from any active and differentiating relationships. Spontaneous genesis, for example, wholly dependent on the notion that some physical part of nature is what lives, is such an avowal; and natural selection also. Natural selection, for a life-endowed individual with reference to an inorganic alien environment is about as unnatural, as irrational, as arbitrary, as anything could possibly be. If biology only would openly and completely identify individuality, not with any mere physical part, but with an active function or relationship, variety and species would no longer seem opposed in any way and such doctrines as those of spontaneous genesis and natural selection would find out their own meaning.

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[1] Or, more technically, apperception.

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[1] Living independently both of each other and of their environment.

[2] *The Darwinian Theory of the Transmutation of Species, Examined by a Graduate of the University of Cambridge.* James Nisbet & Co. London. 1867.

In all likelihood, in spite of all that has been said, I shall be misunderstood here. I am very far indeed from trying to assist the Cambridge graduate or anybody else to restore the absolutely permanent species to the order of nature. I am certainly not trying to sweep back the waves of modern science. My effort is to criticise evolution, not to refute it; or, if to refute it, to refute it in the only legitimate and effective way, namely, by really accepting it and thinking it through to its very last conclusions. Evolutionists appear to have been wrong only in so far as they have not gone far enough, as they have not taken themselves seriously enough. They have not yet been able to cast aside the integument of older views. Let them but recognise fully and candidly that life is an affair of the universe as an organic whole, having neither an origin heretofore nor a destiny hereafter; let them abandon in all its forms their biological atomism; let them openly and once for all displace spontaneous genesis by life as original, and natural selection by natural expression, and individuals of space and time by individuals of organic relationship; let them do all these things and any others that consistency may exact; and, so soon as they have done all, philosophy—whose conceit must be pardoned—will smile upon them.

But somebody objects here and says that I am hopelessly behind the times, that accredited evolutionists of to-day are really quite free from the bondage to which I am assigning them. Well, I am not so sure. Take, for example, their idea of species and the implied idea of the individual. Professor Farlow of Harvard, who is certainly no conservative, in his recent vice-president's address before the American Scientists, doubts "if any better definition [of species] has ever been invented" than this: "a perennial succession of like individuals."[1] True, Professor Farlow says also that "perennial" and "like" must be taken as very elastic terms, and he even concludes that the species, so defined, is only "an arbitrary and artificial creation to aid in classification of certain facts which have accumulated in the course of time," and recognises in addition that botanists, not to mention other naturalists, are giving up their special interest in origins and turning to "cytology, life-histories, and physiology"; but credible as this is, it is not enough. The philosopher cannot allow the scientist even the shadowy form of the old species. Surely, ghosts are not the proper inhabitants of an honest scientist's world. It is one of the dangers of science, as well as of man's life expressed in other directions, to assume that form and matter are two separable things. Form and matter, however, are one and inseparable, and where a form remains, whether it be only "an arbitrary and artificial creation to aid in classification," or some pedagogical or political or theological tradition, expect to find the substance that went with it remaining also. Who has ever been able to retain the letter without also retaining the spirit? In spite of the persistent Kantianism in modern thought, form and content are one. Moreover, with reference to the present view of species, whatever the avowals of evolutionists may be, they still hold almost if not quite unquestioningly to the notion of characters or qualities as temporary and as limited to particular forms, as when, for example, in referring to certain cases of plant-life Professor Farlow says that "sexuality is the rule in nature, but it should be remembered that it is not universal." Now to deny universality to any character is to fail to understand it and is besides, as chiefly concerning us now, implicitly to avow belief in the old immutable species and unrelated or specially endowed individual. And, furthermore, the evolutionists of the day are retaining the substance of the old inconsistent views in their habit of distinguishing so sharply between chemical and physiological and morphological properties, as when Le Dantec says in his *Evolution individuelle et hérédité*, a piece of work that is quite up to date and that is said by some to be very illuminating, that only chemical characters are hereditary. Why will the evolutionists persist in holding evolution back? Why won't they let evolution evolve?[1]

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[1] See *Science* for Sept. 30, 1898: "The Conception of Species as Affected by Recent Investigations on Fungi" by W. G. Farlow. He says also that the conception of species is "much more flexible than it used to be," meaning, if I understand him, nothing more or at least hardly anything more than that the conception has a greater extension, a wider application, than it used to have. And again: "When a race becomes so constant that it no longer reverts and we cannot tell from what species it came, it is no longer a race but a species."

Well, as a matter of course things are not quite as bad in science as I may seem to be making them. Out of the conditions of science to-day precipitation of a consistent evolution is all but inevitable; and the change should come soon, and the scientists themselves, however blind to their own tendencies—blindness being only another name for caution—should hardly be denied the credit for it. In evidence of what is coming, if I may use still another metaphor, the physical sciences and the biological sciences have already blown their bubbles to such a size and such a thinness that the catastrophe, so familiar to all children, seems bound to ensue. Biology, the science of life, has already admitted to its select company a Development-Mechanics and in many ways has made appeal to Physics and Chemistry, the two chief sciences of a lifeless matter; and physical science on its side, as if preparing for the appeal, has become so thoroughly mathematical that the rapidly vanishing spooks of elemental material atoms, occultly endowed with forces, are all that is left behind. No great change, no great shock can be needed to make physical science see that matter lives, and biological science that life is something more than an attached quality, being quite earthly and material; and with the vision, to say no more, the search for the ever minuter, ever escaping "vital unit" will cease, and with the "vital unit" will pass also all individuals, whether in Physics or in Chemistry, in Ethics or in Politics, whose claims to existence and recognition have consisted, first, in physical isolation, and, second, in spontaneous with the sense of arbitrary, suddenly originated activity.

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[1] Here, too, I may extract from between the lines of the above a further statement upon this matter of species. Evolution cannot possibly be free from the notion that the differences and the unity of a species are independent of each other, that the differences are external to the unity and the unity therefore naturally fixed or immutable or only supernaturally changeable, until she frees herself absolutely from any direct or indirect sanction of the inorganic. Immutable species, inorganic environment, and isolated unrelated individuals are only the three sides of what is an equilateral triangle.

But you will be accusing me of digressing. So let us abandon all attempt at prophecy and return for just a word or two more to our criticism. Criticism, indeed, is the only master of prophecy. In this paper so far I have touched directly only upon what seemed to me to be the fundamental inconsistencies of the current evolution,—which in certain cases were rather implied than overt. To have done more, to have considered any of the incidental doctrines, would have been idle. Besides I make no pretence to familiarity with all the details of the modern formulation of the evolution-hypothesis, my attention turning only to the basal assumptions about life, environment, individuality, and their relations. And yet I might venture to speak very briefly of one of the special controversies of more recent times, namely, the controversy about inheritance. At the risk of displaying my philosopher's ignorance I would suggest that *metaphysically* it makes absolutely no difference whether you hold that acquired characters are inherited, or that inheritance is through the transmission of certain vital, originally endowed units. In the former case you alienate the offspring from its environment by limiting it to conditions not its own, and the alienation means a dualism that evolution cannot honestly entertain; and, in the latter case, by adhering to the purely physical which is the dualistic or pluralistic view of the individual you make life itself virtually an acquired character. Whatever may be true for a scientist, a metaphysician cannot possibly think of life under conditions that limit it to certain narrow bounds of nature's phenomena without also thinking of it as something that has come into being, that has at some time entered into that to which it is ascribed. To put the whole case somewhat differently, with such light as I have I cannot see that either the Neo-Lamarckians or the Neo-Darwinians get beyond a literal inheritance, that is to say, a transmission to the offspring of precisely what was in the parent, and it is very certain that literal inheritance, whether complete or only partial, whether only of a general character or of a special character, and evolution, which is so dependent on transmutation or adaptation or differentiation, cannot stand together. And, as for the germ-plasm doctrine of immortal units, this must come and go with the units themselves for the simple reason—it is simple, is it not?—that a unit is not what lives any more than a brain-cell is what thinks or than an atom or molecule or even a planet is what moves.

And now as I conclude you may wish to know more positively, more directly, just what changes a consistent evolution really makes in the current evolution. The chief changes, already mentioned, are three : final and unquestioning rejection of an inorganic matter, liberation complete and absolute from a fixed environment, and whole-hearted adoption of the organic in place of the physically isolated individual. But besides these changes in doctrine there are others in standpoint and method, which have a very practical value and ought to be mentioned. So, asking you to remember that in reality the current evolution is to be found wherever the historical method is used, I shall conclude this paper with a suggestion or two, being necessarily exceedingly brief and general.

If the foregoing criticism has any value, the present with its whole content rather than a dead past or an unborn future must be looked upon as the only true cause of activity. Why, there is no dead past, and there is no unborn future. Those strange questions of mere origin and mere destiny not only are losing their interest but also ought to lose it. The action of any creature, great or small, cannot be thought to be because something, which no longer is, was once, or because something, which not yet is, is to be some time, but only because something is now; or, otherwise put, the cause of action cannot be made external to action itself. For a *consistent* evolution the present, being all-containing, is all-sufficient. Nothing has been outgrown in the sense of left behind and nothing can be acquired, any agent's responsibility being always fully to what is and only to what is. No longer can we think of individuals in a dead past as culpable for not doing or as creditable for doing what only those who live now could ever even think of doing. In history, or in the more general evolution of life, the present was never the motive of the past, as so many would have it; the past never undertook to produce the present; and, accordingly, judgments should never be made on any such assumptions. Not the bygone past but what we might call the contemporary past, the past as a law recognised and heeded now, has made the present. This law *is* rather than *was*. Really I do not know which is the more serious offence, from the standpoint of a consistent evolution, for a biologist to suppose that an animal spontaneously reacts on an environment, as if the creature's past had somehow endowed it with a peculiar and irresponsible power over its present, or for a historian to treat particular men or particular nations as the creators of social or political changes, but certain it is that creation is not true history nor spontaneous reaction true evolution. For animals and for men, that is to say, for all animals, who really have quite enough to do to express the life in which at any moment they find themselves, the only effective past is the past that is a related part of the present.[1]

And, strangely enough, both biologists and historians, without seeming to appreciate fully just what they have been doing, have for some time been bringing the effective past into the present. They have, for example, appealed to mechanical or physical law or to so-called natural conditions, which are obviously quite indifferent to any of the distinctions of time. Is it not John Fiske who would have the trade-winds share the discovery of America with Columbus? But the trade-winds are blowing very faithfully to-day.

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[1] In an article, "Time as a Datum of History," in the current number of the *Philosophical Review*, I have tried to give a careful elaboration of the ideas in these concluding paragraphs.

The older history, the older evolution, is going to have a hard time when these mechanicalistic, naturalistic explanations have fully succeeded to the place of arbitrary acts as the sources of events, for then, with timeless laws to appeal to, the fiction of the past as an antecedent cause of the present will be once for all formally and materially dispelled. Under a consistent evolution, under a history true to its own presuppositions, the timeless laws of the present can be the only signs of a creative or effective past, and this simply because the past to which they point is a real part, a real phase, of the present.

Many object and say that to explain life mechanically or physically and history naturalistically is to deny vital spontaneity and human freedom, but exactly the reverse is the truth. Just for the sake of spontaneity and freedom it is necessary that creatures of the past should be seen to have lived, not lawlessly, but in the very laws to which the living are responsible, upon which the freedom of the living is established. Need I be truistic and say that life and freedom are affairs of the present, not of the past? With regard to such as have gone before we cannot but say, unless we would destroy our own foundations, our own hopes, rather that the law which still is was than that they were. The law of the past as the motive of the present or the necessity of the past as the opportunity of the present is perhaps as good a formula for a truly evolutional development as can be given. Whatever else may be said of it, it certainly does away with the determinism that would make of the past an antecedent cause. Life is quite adequately supplied with responsibilities without being bound by any external conditions or determinations.

But it was suggested above that on the basis of our criticism neither the dead past nor the unreal or unborn future but only the present could be treated as a real cause of activity, and I have to say just a word of the relation of the future to the activity of us that live. Whatever controlling ideal the future has for us all must be here and now active among us. As has been said at least in substance if not in words more than once, "There is no opportunity like necessity; only what is can be." The future can be no inspiring but distant dream; a consistent evolution can know it only as a present living reality, present in the very conditions that are and alive in whatever lives. The effective future, as well as the effective past, is actually and concretely present. The past is perhaps the law, the necessity; the future is the motive or impulse or freedom.

And here, as a last word, although I have no thought of interfering with anybody's theology, I cannot help saying, with a philosopher's license, that as evolution becomes honest enough to think of life and individuality as not inherent in separate physical bodies and of the future however remote as already alive in the present, a concept of immortality satisfactory at once to science and to faith will be all but laid open to us.

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